

CABINET

Date of Meeting	Tuesday 15 November 2016
Report Subject	Capital Investment in the Street Lighting infrastructure and upgrade to LED lanterns
Cabinet Member	Deputy Leader of the Council and Cabinet Member for Environment
Report Author	Chief Officer (Streetscene & Transportation)
Type of Report	Operational

EXECUTIVE SUMMARY

The Council owns and maintains approximately 20,500 street lights and 3,250 illuminated signs across the County. The total energy bill for the Street Lighting network was £864k in 2015-16.

Since a review of the Council's Street Lighting Policy in 2015, a number of steps have been taken to help reduce both the energy costs and carbon footprint of the Authorities lighting stock, through a wide range of measures, including the introduction of dimming and part night lighting arrangements in some areas of the County.

Many of the remaining lanterns are coming towards the end of their design life and an opportunity to apply for Welsh Government (WG) Green Growth Invest to Save funding ('the Wales Funding Programme') to replace the existing units with more energy efficient Light Emitting Diode (LED) lanterns, has become available. This report provides details of the financial case to replace approximately 12,000 of the Councils lighting units in this way.

The project will contribute towards the Council's Improvement Priority for the Environment by reducing our carbon emissions and it will also contribute towards meeting the principles contained within the Wellbeing of Future Generations (Wales) Act.

RECOMMENDATIONS

1	That Cabinet approves the Wales Funding Programme submission for Capital Funding to replace the appropriate Street Lighting lanterns with new and more energy efficient LED lighting units.
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REPORT DETAILS

1.00	EXPLAINING THE BACKGROUND TO THE PROPOSALS
1.01	<p>The annual consumption of electricity for the Council's street lighting inventory is approximately 8 million kilowatt hours (kwh), at a cost of approximately £864k per annum, based on a unit cost of 10.53p/kwh. This gives an average annual cost per lamp of £36.38 or approximately 8 pence per illuminated asset per night. With a high probability of on-going increases in electricity tariffs, this cost is likely to rise in future and place an additional burden on the Authority's Street Lighting budget in future years.</p>
1.02	<p>Industry estimates suggest that energy tariffs could increase by as much as 3-5% per annum over the next ten years however this increase could be potentially higher and these increasing costs will have an adverse effect on the Council's ability to maintain the existing Street Lighting network at the current operating level. In this eventuality, difficult decisions on the future of the Street Lighting service will once again be faced, unless further actions to reduce the total energy costs are taken now.</p>
1.03	<p>A number of energy saving options have already been introduced in the County to offset previous increases in the energy costs associated with the Street Lighting service.</p> <p>These include:</p> <ul style="list-style-type: none">• Switching the Street Lighting off where lights were no longer necessary or over provided for.• Part night lighting between the hours of 24:00 and 05:00 on main non-residential routes and in the County's Industrial Estates.• Dimming all of the County's lighting units between the hours of 22:00 and 06:00 in all areas of the County.
1.04	<p>Despite the significant amount of energy efficiency work carried out over the past five years on the network, the majority of the inventory is still made up of either conventional sodium units (SON / SOX), identified by their yellow coloured light output or "Cosmo" lanterns which provide a white coloured light output. These lanterns are still relatively energy inefficient compared to the most modern lanterns and many of the units are now over 15 years old and approaching the end of their design and working life.</p>
1.05	<p>The preferred option going forward would be to replace the existing lanterns with modern and energy efficient LED lanterns. The design and reliability of LED lanterns has improved greatly over the last decade, with the latest technology producing a clearer white light, providing higher lumen output from a much lower wattage, thereby using less energy, and producing lower carbon emissions than the current lanterns. The cost of these lanterns has fallen significantly in recent years as demand for new and more energy efficient solutions has grown.</p>

1.06	The new and more energy efficient LED lanterns can provide energy savings of up to 73% (depending on light output) when compared to the existing units however, despite the reducing purchase costs, a large initial capital investment is still required to procure the new units.
1.07	The Wales Funding Programme supports projects which contribute to the WG's Energy Efficiency Strategy and WG is collaborating with Salix Finance Ltd to support Green Growth projects. This new funding source is administered by Salix who have been supporting the FCC bid by undertaking technical assessments of the proposed projects.
1.08	The funding is provided in the form of a loan which is provided for energy efficient projects, with the repayments being made from the savings gained from reduced energy usage. Once the loan is repaid, the Authority will continue to benefit from the energy savings delivered and a lowered carbon footprint for its Street Lighting service.
1.09	Only those projects where the resultant energy savings, over the lifetime of the project, go directly back to the public sector and the public sector gains a direct financial benefit are eligible and in order to comply with the funding criteria, a project must both pay for itself from the resulting energy savings within a maximum 8 year period (unless the applicant can evidence a special case for investment above this payback criteria) and cost no more than £200 to save a tonne of carbon dioxide over the expected lifetime of the project.
1.10	The overall cost of the FCC replacement project is greatly reduced by utilising the Council's own Street Lighting team to carry out the replacement work over a two year period, during the current two yearly inspection visit to each lighting column. With this approach to installation of the new units, an estimated payback period of approximately 8 years can be achieved and Appendix 1 details the financial case for the project and the costs savings identified from the investment to replace approximately 12,000 lanterns over the next two year period, which provides an energy saving of 3,086,000 kw/hrs per year. It should be noted that the payback period takes no account of likely savings associated with reduced maintenance, inflationary increases in electricity prices and carbon reduction commitment (CRC) although these savings are shown in the attached financial model.
1.11	Approximately, 1,386 tonnes of CO2 will be saved annually as a result of this project. This will result in an annual reduction in CRC costs of around £22k (based on costs of £16 per tonne). Whilst the CRC scheme will end after 2018/19, the business energy tax (i.e. CRC) will be transferred to the climate change levy (CCL). This means that reducing energy consumption is essential to reducing future CCL costs.
1.12	If the recommendation to proceed with this project is approved, a formal application to Salix will be completed and it is expected that if the bid is successful, the funding will be received during January 2017.
1.13	The new lanterns will be fitted with LED lamps (bulbs) which have an approximate expected design life of up to 20 years, compared to typical SON / SOX lantern's lamp life expectancy of 2 to 5 years. This produces an additional benefit of the new lighting regime from the reduction in the number of faults on the network, which in turn reduces ongoing maintenance costs.

1.14	Modern lanterns are manufactured in accordance with the Waste Electrical and Electronic Equipment Regulations (WEEE) and comply with all relevant environmental regulations. They can be recycled at the end of their useful life, further helping the Authority reduce its carbon footprint and meet its environmental recycling targets. The Street Lighting lanterns replaced under the proposed project will also be recycled in accordance with the WEEE Regulations.
1.15	Subject to funding being granted, the service will undertake a compliant tender to procure the lighting units under the All Wales Highway Lighting Framework. The installation work will be undertaken by the Council's own Street Lighting team over a two year period whilst they undertake the planned bi-annual inspections of each lighting unit in the County.
1.16	Any interim energy savings which are accrued by the early installation of the new lanterns (i.e. before the initial repayment date) will be reinvested into the service to complete the replacement of remaining life-expired concrete columns. Following completion of this project, all of the 2,000 plus original concrete columns will have been replaced within the past 4 years, from various WG and Council capital funding streams. This has removed a significant risk from the service as many of the columns were in risk of collapse and the upgrade has greatly improved the value and resilience of the overall street lighting stock.
1.17	The pilot part-night lighting scheme in some residential areas across the County will also be reviewed as part of this project, as the lanterns in these roads will also be replaced. Consideration will be given to retaining the full night provision, subject to discussion with the Local Member and local residents. The part night lighting arrangements on the Councils Industrial Estates will remain.
1.18	Discussion will take place with local Town and Community Councils regarding the potential for them to also bid for funding from the Salix funding stream to update their own lighting network.

2.00	RESOURCE IMPLICATIONS
2.01	The Financial Case for the project are detailed in Appendix 1 . A request will be made to Salix to suspend the repayments on the loan for a period of two years to allow time for the installation work to be completed and for associated energy savings to be realised. Repayments will commence in year 3, with equal repayments being made in each of the subsequent 8 years.
2.02	The installation work will be carried out by the Council's own Street Lighting teams.
2.03	The total potential 20 year financial benefit of the project will be between £3.2m and £5.9m - depending on future energy levels.

3.00	CONSULTATION REQUIRED / CARRIED OUT
4.01	With the Cabinet Member.

4.00	RISK MANAGEMENT
4.01	A desk top Equality Impact Assessment has been carried which concluded that the proposals do not negatively affect any of the protected groups and that there are no equality issues from the proposals.

5.00	APPENDICES
5.01	Appendix 1 – Financial Case and loan repayment schedule

6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	Contact Officer: Stephen O Jones Telephone: 01352 704700 E-mail: stephen.o.jones@flintshire.gov.uk

7.00	GLOSSARY OF TERMS
7.01	<p>LED - Light Emitting Diode</p> <p>SON - High pressure sodium</p> <p>SOX - Low pressure sodium</p> <p>WEEE - Waste Electrical and Electronic Equipment Regulations</p> <p>Salix Finance Ltd – Independent, publicly funded organisation committed to providing the public sector with interest free capital finance for energy saving projects</p> <p>CRC - Carbon Reduction Commitment</p> <p>CCL - Climate Change Levy</p>